



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, D.C. 20460

July 28, 2011

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

VIA E-MAIL

Mr. Craig Swartzendruber  
Manager Environmental Compliance  
Westar Energy  
818 South Kansas Avenue  
P.O. Box 889  
Topeka, Kansas 66601-0889

Dear Mr. Swartzendruber,

On October 26, 2010 the United States Environmental Protection Agency ("EPA") and its engineering contractors conducted a coal combustion residual (CCR) site assessment at the Tecumseh Energy Center facility. The purpose of this visit was to assess the structural stability of the impoundments or other similar management units that contain "wet" handled CCRs. We thank you and your staff for your cooperation during the site visit. Subsequent to the site visit, EPA sent you a copy of the draft report evaluating the structural stability of the units at the Tecumseh Energy Center facility and requested that you submit comments on the factual accuracy of the draft report to EPA. Your comments were considered in the preparation of the final report.

The final report for the Tecumseh Energy Center facility is enclosed. This report includes a specific condition rating for each CCR management unit and recommendations and actions that our engineering contractors believe should be undertaken to ensure the stability of the CCR impoundment(s) located at the Tecumseh Energy Center facility. These recommendations are listed in Enclosure 2.

Since these recommendations relate to actions which could affect the structural stability of the CCR management units and, therefore, protection of human health and the environment, EPA believes their implementation should receive the highest priority. Therefore, we request that you inform us on how you intend to address each of the recommendations found in the final report. Your response should include specific plans and schedules for implementing each of the recommendations. If you will not implement a recommendation, please provide a rationale. Please provide a response to this request by August 29, 2011. Please send your response to:

Mr. Stephen Hoffman  
U.S. Environmental Protection Agency (5304P)  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

If you are using overnight or hand delivery mail, please use the following address:

Mr. Stephen Hoffman  
U.S. Environmental Protection Agency  
Two Potomac Yard  
2733 S. Crystal Drive  
5<sup>th</sup> Floor, N-5838  
Arlington, VA 22202-2733

You may also provide a response by e-mail to [hoffman.stephen@epa.gov](mailto:hoffman.stephen@epa.gov)

You may assert a business confidentiality claim covering all or part of the information requested, in the manner described by 40 C. F. R. Part 2, Subpart B. Information covered by such a claim will be disclosed by EPA only to the extent and only by means of the procedures set forth in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when EPA receives it, the information may be made available to the public by EPA without further notice to you. If you wish EPA to treat any of your response as “confidential” you must so advise EPA when you submit your response.

EPA will be closely monitoring your progress in implementing the recommendations from these reports and could decide to take additional action if the circumstances warrant.

You should be aware that EPA will be posting the report for this facility on the Agency website shortly.

Given that the site visit related solely to structural stability of the management units, this report and its conclusions in no way relate to compliance with RCRA, CWA, or any other environmental law and are not intended to convey any position related to statutory or regulatory compliance.

Please be advised that providing false, fictitious, or fraudulent statements of representation may subject you to criminal penalties under 18 U.S.C. § 1001.

If you have any questions concerning this matter, please contact Mr. Hoffman in the Office of Resource Conservation and Recovery at (703) 308-8413. Thank you for your continued efforts to ensure protection of human health and the environment.

Sincerely,  
/Suzanne Rudzinski/, Director  
Office of Resource Conservation and Recovery

Enclosures

Tecumseh Energy Center **Recommendations (from the final assessment report)****4.2 Recommendations**

The management units were rated poor in the November 2010 Draft Report because of lack of documentation. Specifically, hydrologic and hydraulic documentation was not provided for either pond.

In comments to the Draft Report, the state of Kansas indicated they believed that the Poor rating assigned by AMEC to the ponds was misleading. They stated “the report should explicitly and more directly reflect a lack of proper documentation as the reason for the assessment.” The Draft Report clearly stated the lack of documentation, specifically hydraulic and hydrologic, led to the Poor condition rating for the ponds. As the condition ratings clearly state, “POOR may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency. Further investigations and studies are necessary.” Hydrologic Section 4.2.1 of the Draft Report clearly outlined the type of information that would be used to determine whether the ponds were designed and operated adequately with respect to hydrologic and hydraulic concerns.

**4.2.1 Hydrologic and Hydraulic***Draft Report*

AMEC recommends that an appropriate design storm rainfall and freeboard depth in accordance with MSHA guidelines be applied to watershed that is tributary to the Area 1 and Area 2 ponds to assess whether the dam and decant system can safely store, control, and discharge the design flow. Based on the size and rating for the ponds, the MSHA recommended design storm would be the ½ PMF for Ash Pond 1 and the 100-year, 24-hour event for Ash Pond 2. Hydraulic calculations should also be completed to determine the rate at which the discharge system could pass the design storm, if necessary, or draw down elevated water surfaces following such an event. The analysis should consider all critical stages over the life of the pond including full pond conditions.

*Final Report*

Based on the information that AMEC determined from internal review of *Technical Paper No. 40 Rainfall Frequency Atlas of the United States as well as* discharge weir and pond crest elevations provided by Westar Energy, design storm freeboard conditions were estimated. Ash Pond 2 appears to be capable of storing the 100-year 24-hour design storm while maintaining sufficient freeboard ( $\geq 3$  feet) above the water surface elevation resulting from the design storm. Based on that information, AMEC has improved the rating for Ash Pond 2 to Satisfactory. Continued operation with a normal operating water surface elevation four feet below the impoundment crest is recommended.

Ash Pond 1, however, is subject to a larger design storm event because this pond carries a higher hazard rating due to nearby residences. With only three feet of freeboard available during typical operations, the design storm of ½ PMF would reduce the freeboard to much less than the MSHA recommended three feet. AMEC believes that a rating of Fair is appropriate for Ash Pond 1, as “No existing dam safety deficiencies are recognized for **normal** loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action.” Uncertainties exist as to how the pond would respond to the design storm of ½ PMF and if an acceptable freeboard condition would result based on the currently reported normal operating water surface elevations. Additionally, hydraulic information was not provided for the discharge weir and associated piping system.

AMEC recommends that Westar Energy performs and documents a complete hydrologic and hydraulic study for both Ash Ponds, as described in the Draft Report, and that the study be used to properly and appropriately operate the ponds in anticipation of and response to future design storm events.

#### **4.2.2 Geotechnical and Stability Recommendations**

Based on the stability analyses provided to AMEC, the Area 1 and Area 2 ponds meet minimum factors of safety.

#### **4.2.3 Monitoring and Instrumentation Recommendations**

AMEC recommends that the installation and periodic monitoring of piezometers be considered by Westar Energy.

#### **4.2.4 Inspection Recommendations**

Annual visual inspections of each management unit should be performed by a Professional Engineer. These inspections should be documented reports and should be maintained by the facility.

Additionally, weekly visual inspections should be performed by facility O&M personnel and should be supported by an inspection checklist that would serve as documentation of these inspections.

AMEC recommends that vegetation on the impoundments be aggressively managed based on guidance in (a) Corps of Engineers EM 1110-2-301, *Guidelines for Landscape Planting and Vegetation Management at Floodwalls, Levees, and Embankment Dams* and (b) FEMA 534, *Technical Manual for Dam Owners: Impacts of Plants on Earthen Dams*. Additionally, any animal impact should be mitigated based on guidance in FEMA 473, *Technical Manual for Dam Owners: Impacts of Animals on Earthen Dams*.

Westar Energy staff noted to AMEC during the October 2010 site visit that, while they understood the importance of vegetation management they were receiving conflicting recommendations from various state and federal regulatory agencies regarding best vegetation management practices. In AMEC's opinion, Westar Energy should coordinate with federal, state agencies, and any other stakeholders to reach a consensus agreement regarding vegetation management at the site.